



TSUNAMIS

and the Environment

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Words in **bold** are in the glossary.

DISASTER IN JAPAN

On March 11, 2011, a powerful earthquake occurred in the Pacific Ocean about 80 miles (130 kilometers) from Japan. Thirty minutes later, a powerful tsunami slammed into Japan's Pacific coast. The largest wave was 131 feet (40 meters) tall.

The tsunami affected 1,242 miles (2,000 km) of Japan's coast. More than 18,000 people died in the natural disaster. More than 120,000 buildings were destroyed. Piles of debris were left behind.

FACT

A year after the 2011 Japan earthquake and tsunami, people walking along the beach in Oregon found a dock. It had floated across the Pacific Ocean from Misawa, Japan.



The tsunami also affected the **environment**. Farmlands as far as 3 miles (5 km) inland were flooded. Salt water, sand, and mud destroyed rice fields. Salt water had mixed in with the fresh water in the fields. This **brackish** water hurt crops. As a result, crops couldn't grow in these areas for a long time. Plants were killed along coastlines and beaches were destroyed.

The 2011 tsunami in Japan ripped apart buildings in its path, leaving rubble behind.



OCEAN WAVES

The word *tsunami* means “big wave” in Japanese. Most tsunami waves are less than 10 feet (3 m) high. These small waves don’t usually cause widespread damage. But some tsunamis can be 100 feet (30 m) tall or more. These are the ones that cause the most damage.

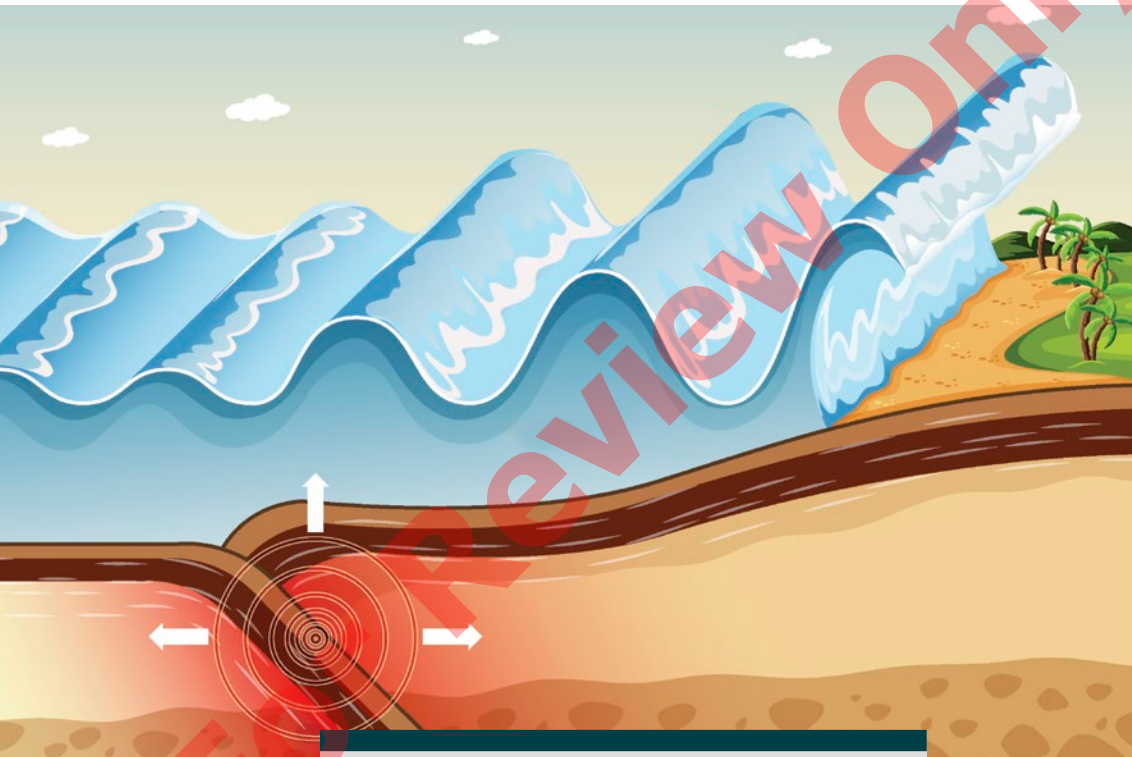
How Do Tsunamis Happen?

What can cause tsunamis? Sometimes volcanic eruptions or landslides can create tsunamis. But earthquakes in the ocean are the most common cause. Earth’s crust is made up of giant pieces of rock called tectonic plates. They lie under our oceans and continents.



The 2004 Indian Ocean earthquake and tsunami damaged the city of Banda Aceh, Indonesia.

Tectonic plates continually move. Sometimes they bump into each other and get stuck. Pressure builds. When the pressure becomes too much, the plates can suddenly move. The movement pushes the water up into a giant wave.



FACT

As tsunamis get near coasts, they slow down and get taller.



When a tsunami hits land, it can cause great destruction. People build cities, resorts, and homes on beaches and in coastal regions. These places can be easily destroyed by a tsunami. People and animals can be killed. The effects on the environment can be overlooked as people focus on the human impact.

Some scientists think climate change could cause more tsunamis around the world. Global warming can cause sea levels to rise as glaciers melt. Tsunamis then could more easily reach inland areas. Global warming can also lead to less stable soil, which can cause more landslides. Let's take a closer look at how nature can be affected by these powerful ocean waves.

In 2018, a tsunami damaged coastal areas of Indonesia.

